ECO-THON

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PROBLEM STATEMENT :

In the realm of computer science education, there exists a pressing need for a web-based solution that can demystify the complexities of data structures and algorithms for students. These foundational concepts form the bedrock of a programmer's skillset, yet their understanding often eludes many learners. This challenge becomes even more critical for students gearing up for job placements, where a firm grasp of these basics is indispensable.

SOLUTION :

Our endeavor is to address this educational gap by creating a cutting-edge web application. The primary objective of this application is to provide students with crystal-clear explanations and intuitive learning resources for data structures and algorithms. By doing so, we aim to empower students to not only comprehend these core concepts but also to apply them effectively when solving intricate problems.

Furthermore, our application will serve as a valuable tool for students preparing for job placements. In the highly competitive world of technical interviews, time is of the essence. To maximize their chances of success, students need to revise these fundamental principles thoroughly and efficiently. Our solution will offer them the means to achieve this, enabling them to

tackle a greater volume of questions in less time, thereby boosting their confidence and readiness for placements.

In essence, our web application seeks to bridge the gap in understanding data structures and algorithms, making them more accessible and comprehensible to students, and in doing so, equipping them with the knowledge and skills needed to excel in both their academic pursuits and their professional endeavors.

SUSTAINABLE DEVELOPMENTS GOAL :

The SDGs met :

1. QUALITY EDUCATION :
   The web application aims to improve the quality of education by providing students with accessible and comprehensive resources on data structures and algorithms. Quality education is a fundamental goal for personal development and societal progress.

2. DECENT WORK AND ECONOMIC GROWTH :
   By helping students prepare for job placements, the application supports the goal of creating decent employment opportunities and fostering economic growth. Well-prepared job candidates are more likely to secure meaningful employment.

3. SUSTAINABLE CITIES AND COMMUNITIES :
   Through online education, the application contributes to building more sustainable communities by reducing the need for physical infrastructure associated with traditional educational institutions.

LIST OF MODULES :

→ LogIn / SignUp page
    → Forget Password

→ Homepage
    → Introduction
        → Algorithm
        → Time Complexity
        → Asymptotic Notation
        → Running Time of an Algorithm

    → Sorting & Searching Algorithms (Brute Force)
        → Bubble Sort
        → Selection Sort
        → Insertion Sort
        → Linear Search

    → Divide & Conquer Algorithms
        → What is it ?
            → Iterative vs Recursive Function
        → Merge Sort
        → Quick Sort
        → Binary Search

    → Stack
        → What is Stack ?
            → Push
            → Pop
        → Expression Evaluation
            → Types of Expression
            → Infix to Postfix Expression using Stack
            → Evaluation of Postfix Expression using Stack

→ Queue
    → What is Queue ?
        → EnQueue
        → DeQueue
    → Circular Queue

→ Linked List
    → What is Linked List ?
    → Singly Linked List
    → Double Linked List
    → Circular Linked List
    → Operations performed in a Linked List
        → Creation
        → Insertion
        → Deletion
        → Swapping

FLOW CHART :

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LogIn / SignUp page
├── Forget Password
└── Homepage
    ├── Introduction
    │   ├── Algorithm
    │   ├── Time Complexity
    │   ├── Asymptotic Notations
    │   └── Running Time of an Algo...
    ├── Sorting & Searchi...
    │   ├── Bubble Sort
    │   ├── Selection Sort
    │   ├── Insertion Sort
    │   └── Linear Search
    ├── Divide & Conquer
    │   ├── What is it ?
    │   │   └── Iterative vs Recursive...
    │   ├── Merge Sort
    │   ├── Quick Sort
    │   └── Binary Search
    ├── STACK
    │   ├── What is Stack ?
    │   │   ├── Push
    │   │   └── Pop
    │   └── Expression Evaluation
    │       ├── Types of Expression
    │       ├── Infix to Postfix expres...
    │       └── Evaluation of Postfix e...
    ├── QUEUE
    │   ├── What is Queue ?
    │   │   ├── EnQueue
    │   │   └── DeQueue
    │   └── Circular Queue
    └── LINKED LIST
        ├── What is a Linked List ?
        ├── Singly Linked List
        ├── Double Linked List
        ├── Circular Linked List
        └── Operations performed on...
            ├── Creation
            ├── Insertion
            ├── Deletion
            └── Swaping
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